

Geographic Information System-based
Safety Analysis, Visualization, and Exploration Resource
(GIS-SAVER)
for
Engineering, Enforcement, Education, Emergency Response, and Everyone else!
(GIS-SAVER:ES)



**Iowa Department
of Transportation**

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Intersection of E 14th St. (US 69) and Hull Ave. Polk County 2002-2004

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District 1 requested a crash history of the intersection of E 14th St. and Hull Ave. in Des Moines. E 14th St. is US 69 at this intersection. Typically for intersections with more than 10 crashes a year, 3 years of crash history is used. For intersections with fewer than 10 crashes a year, 5 years worth of data is typically used. As you will be able to see when you view the data, this intersection has more than 10 crashes a year so we will be using 3 years worth of data(2002-2004). A Collision Diagram of the intersection will also be made.

This example will assume that the user has a basic knowledge of ArcView SAVER. If a more detailed example is desired see the Harrison County example.

Step 1: Open the SAVER Project

Start SAVER. Go to the ArcView pull-down menu and select Start SAVER.

Click Continue at the about dialog box.

Open New Map

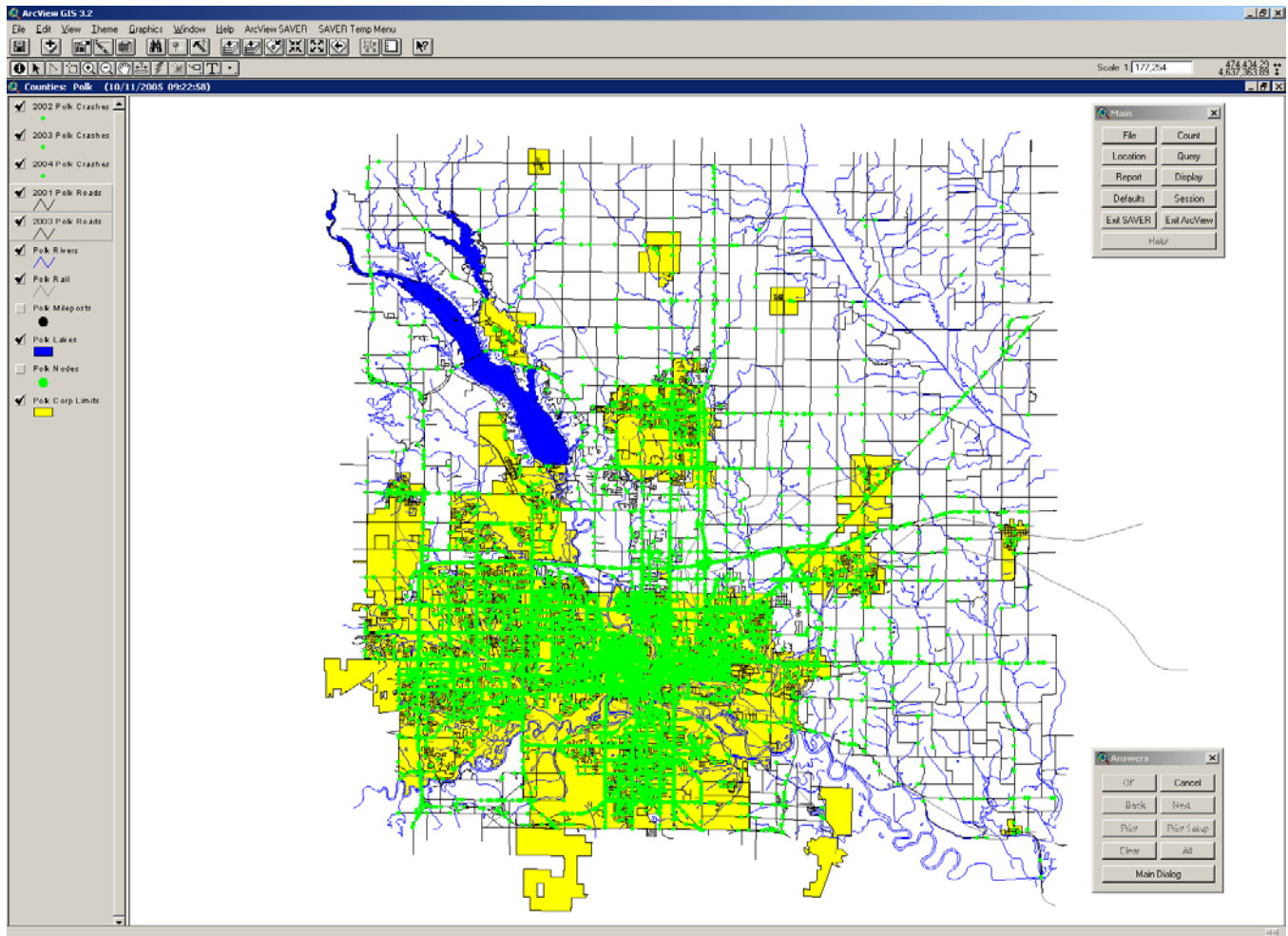
SAVER Example

E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004

Next open up the Polk County map with
the appropriate years of data(2002-2004).

To do this go to File>New>County and
select Polk County. Click Next. Select
the years 2002-2004 and click next.

You should see something similar to the following picture.



Find Location

SAVER Example

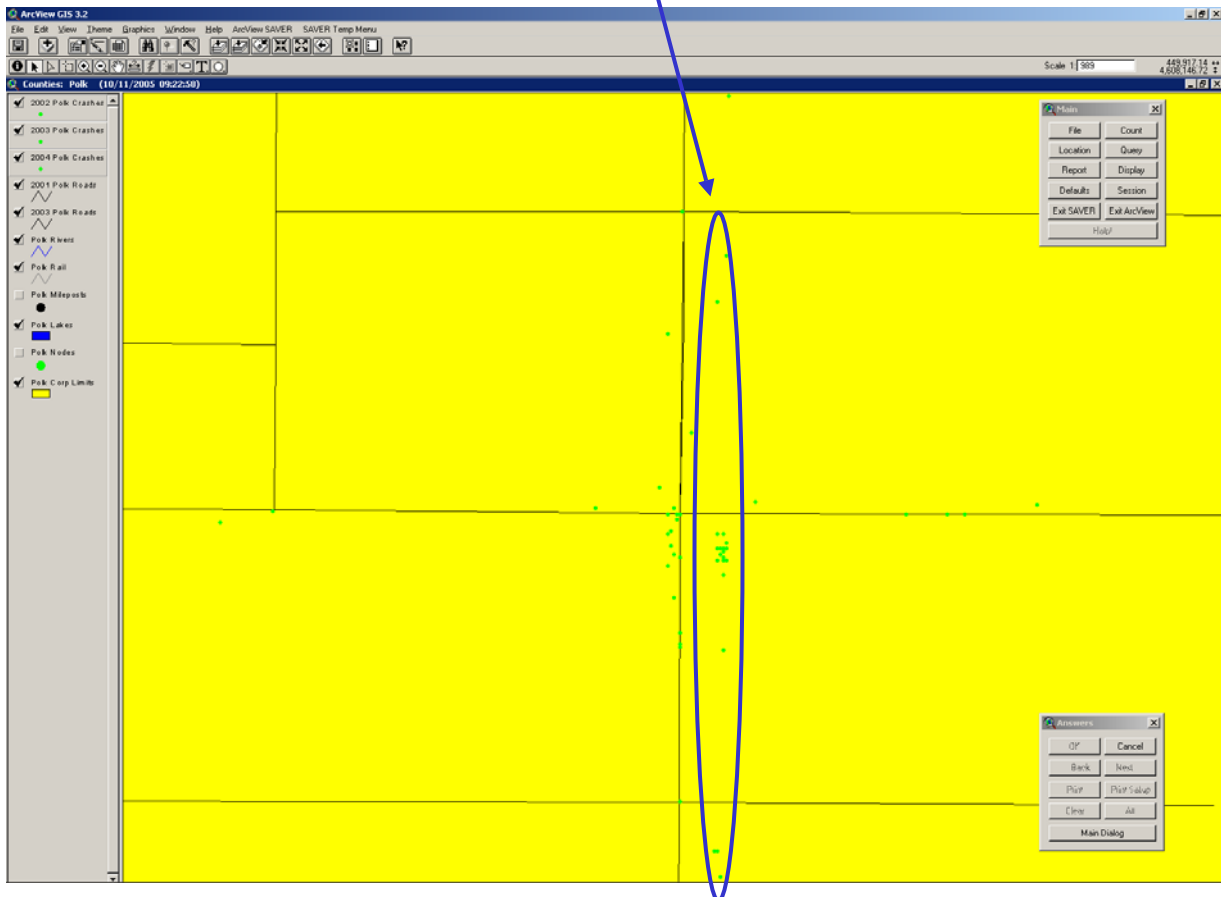
E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004

If you are unsure where these roads are located at in Des Moines, you can use the Query Builder tool button to find them. Once you find the intersection of these two roads, zoom in closer to the intersection so that you can see what is going on better.



Query Builder

One thing that you will notice is that not all of the crashes appear on the roadway. A large number of them lie parallel to the roadway. These crashes should be on the roadway and you will want to make sure that you include them. This is usually a little bit of a judgment call on how many and which crashes to include.



Select Crashes

SAVER Example

E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004

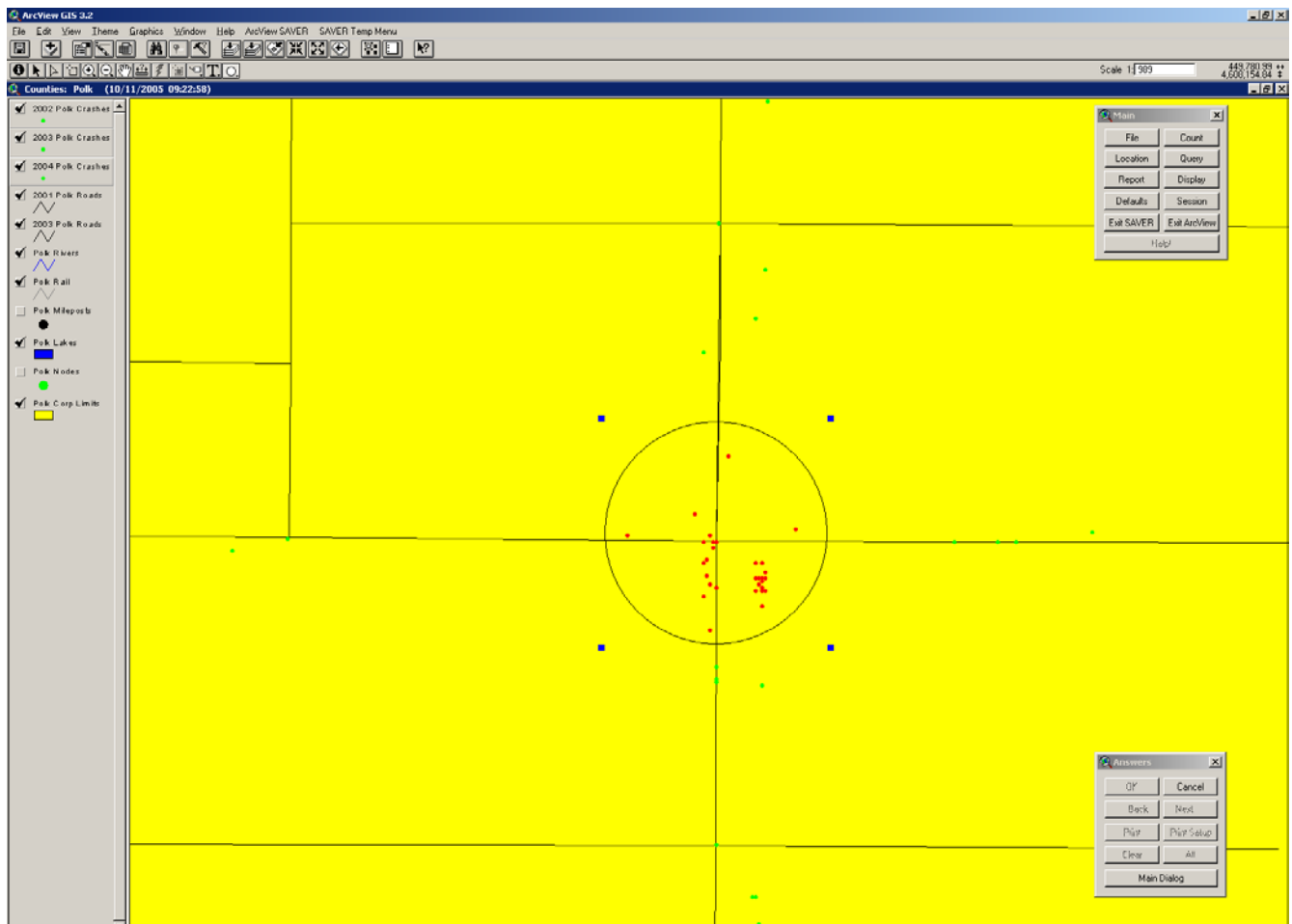
The next step is to select all of the crashes within 150' of the intersection. This is usually a good distance to use as most crashes within this distance of the intersection occur because of the intersection. A different distance may be used if the location or geometry of the intersection dictates so.

The easiest way to do this is to draw a circle with a radius of 150' at the intersection. The Draw Circle button can be selected from the Draw Point tool bar. The Select by Graphic Tool can then be used to select all crashes that are within the circle.



Select Features Using Graphic

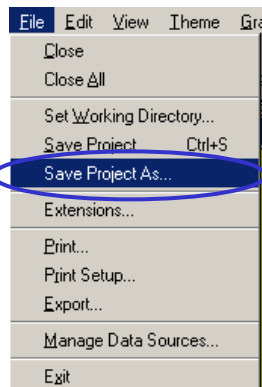
Draw Circle



Save Project

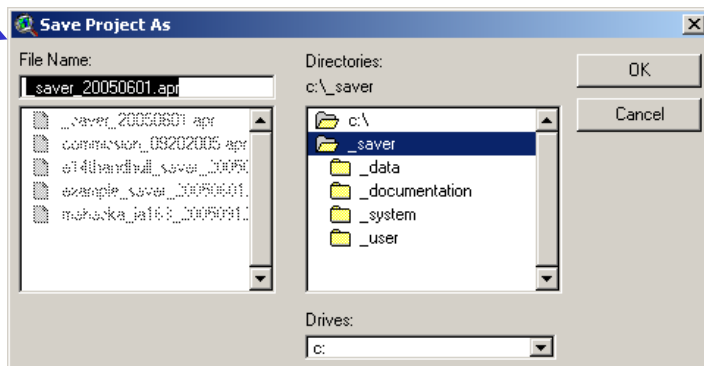
SAVER Example

E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004



Periodically saving your work is a good idea. Occasionally, something will cause ArcView to shut down. If you haven't saved, your work will be wasted. To save an ArcView SAVER project, locate the File menu in the upper left of the ArcView window. Click on File and the menu will expand.

Click on Save Project As...

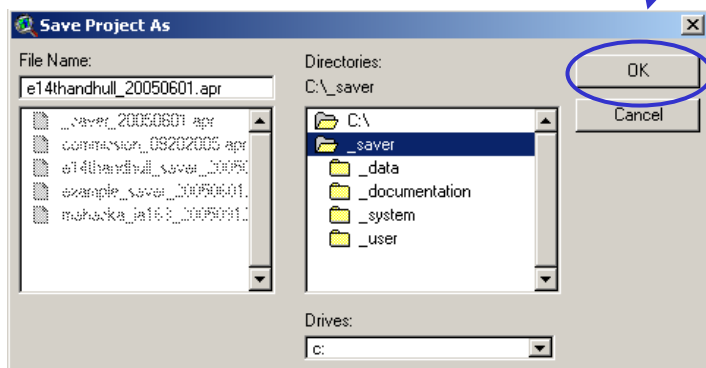


The Save Project As dialog appears with the name of the SAVER project visible and highlighted. Type in some other name which describes your current project. Updating the date may help you recall, months from now, what the project was.

Note: Clicking Save Project from the File menu or leaving the file name the same will overwrite the SAVER project. This will cause the current views, tables, etc. in the project to open the next time you open SAVER.

Note: Please only save the projects within the _saver directory. Saving them somewhere else could cause problems.

For this example, type in "e14thandhull_<date>", where <date> is the current day's date.



When finished, Click OK and the project will save.

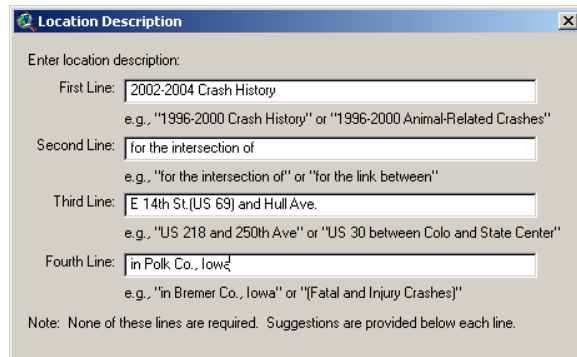
Note: To open this project later, first open the SAVER project, then choose the File menu, click on Open Project (available when the project window within ArcView is active), and locate your project file.

Count Crash Frequencies, Severities, and Injuries

SAVER Example

E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004

From the Main dialog box click on Count. You can then enter descriptive information about the intersection. This is optional but advised. Then click Next in the Answers dialog box.



Location Description

Enter location description:

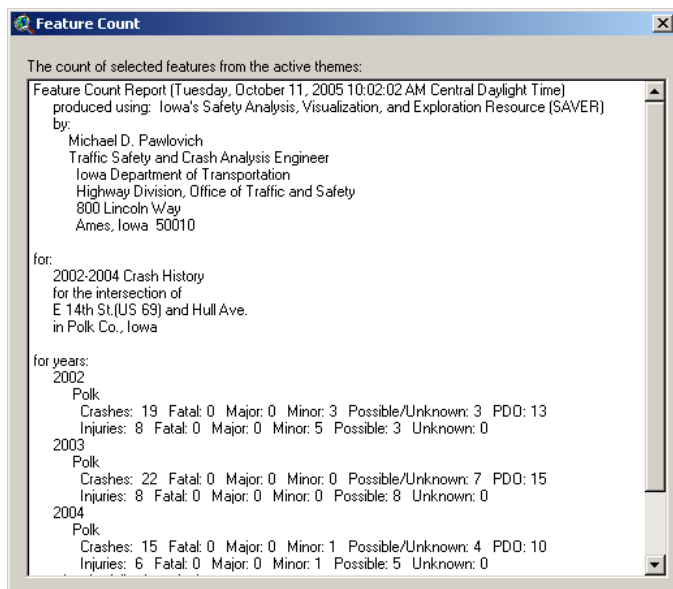
First Line: 2002-2004 Crash History
e.g., "1996-2000 Crash History" or "1996-2000 Animal-Related Crashes"

Second Line: for the intersection of
e.g., "for the intersection of" or "for the link between"

Third Line: E 14th St.(US 69) and Hull Ave.
e.g., "US 218 and 250th Ave" or "US 30 between Colo and State Center"

Fourth Line: in Polk Co., Iowa
e.g., "in Bremer Co., Iowa" or "[Fatal and Injury Crashes]"

Note: None of these lines are required. Suggestions are provided below each line.



Feature Count

The count of selected features from the active themes:

Feature Count Report (Tuesday, October 11, 2005 10:02:02 AM Central Daylight Time)
produced using: Iowa's Safety Analysis, Visualization, and Exploration Resource (SAVER)
by:
Michael D. Pawlovich
Traffic Safety and Crash Analysis Engineer
Iowa Department of Transportation
Highway Division, Office of Traffic and Safety
800 Lincoln Way
Ames, Iowa 50010

for:
2002-2004 Crash History
for the intersection of
E 14th St.(US 69) and Hull Ave.
in Polk Co., Iowa

for years:

2002
Polk
Crashes: 19 Fatal: 0 Major: 0 Minor: 3 Possible/Unknown: 3 PDO: 13
Injuries: 8 Fatal: 0 Major: 0 Minor: 5 Possible: 3 Unknown: 0

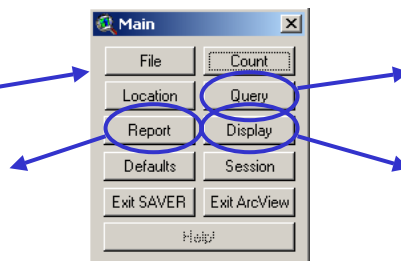
2003
Polk
Crashes: 22 Fatal: 0 Major: 0 Minor: 0 Possible/Unknown: 7 PDO: 15
Injuries: 8 Fatal: 0 Major: 0 Minor: 0 Possible: 8 Unknown: 0

2004
Polk
Crashes: 15 Fatal: 0 Major: 0 Minor: 1 Possible/Unknown: 4 PDO: 10
Injuries: 6 Fatal: 0 Major: 0 Minor: 1 Possible: 5 Unknown: 0

After a bit of computer time, a Feature Count report appears. This report shows the date and time of creation, which program was used, the analyst contact information, the location, and a year by year, county by county breakdown of the crash history. A total for all years and all counties is shown at the bottom.

This can be printed from ArcView, although the options are limited. More options for formatting the text are available if the text is copied into a word processor such as Microsoft Word.

When done, click the Next button in the Answers dialog box to return to the Main dialog.



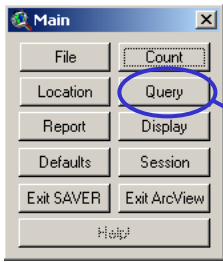
Now, options like Querying, Reporting, or altering the map Display are available to you. Each of these is optional.

Actually, the Count option was optional as well.

Queries and Reports

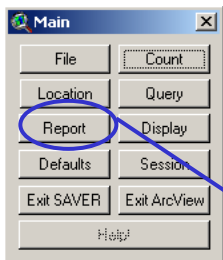
SAVER Example

E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004



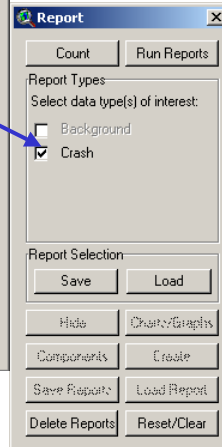
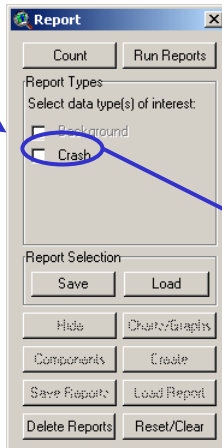
To begin a query, begin at the Main dialog and click the Query button. However, as this was not requested, this step can be skipped. All possible crash attribute values are included by default. Querying limits these values to selected choices.

Not requested.



To begin a report, begin at the Main dialog and click the Report button. Select Crash and click Next.

Click
Report.

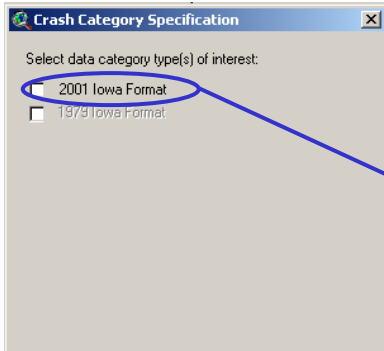


Select Crash.

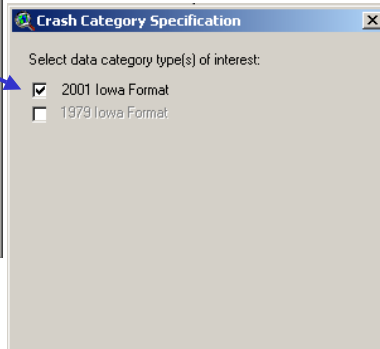
Click Next in the
Answers dialog box.

SAVER Example

E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004



Select the appropriate crash report form(s). 2001 Iowa Format is valid from 2001 thru 2005 and that is what we have for this example. Both report forms should be selected if data older and newer than 2001 were used. The reports for each format ARE different.



Click Next in the Answers dialog box.



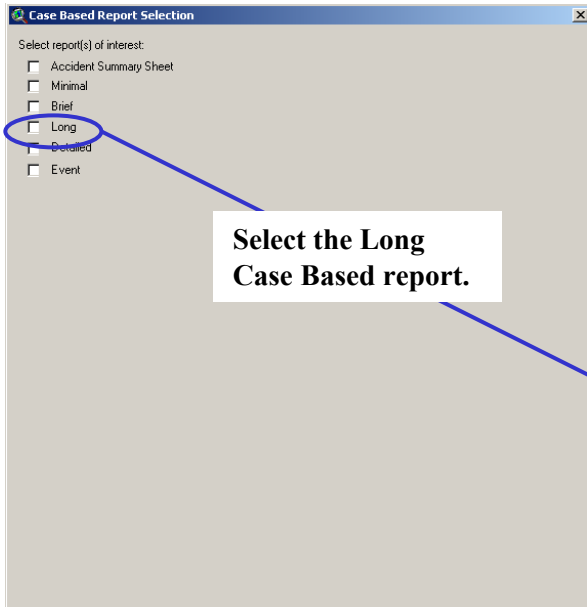
Select the report type(s) of interest. Case Based reports list a variety of details about each case, depending on which Case Based report is selected. Year Based reports summarize a particular attribute by year. These reports list the number of crashes with the attribute included and report crash severity and injury severity information.

Select both types of reports.

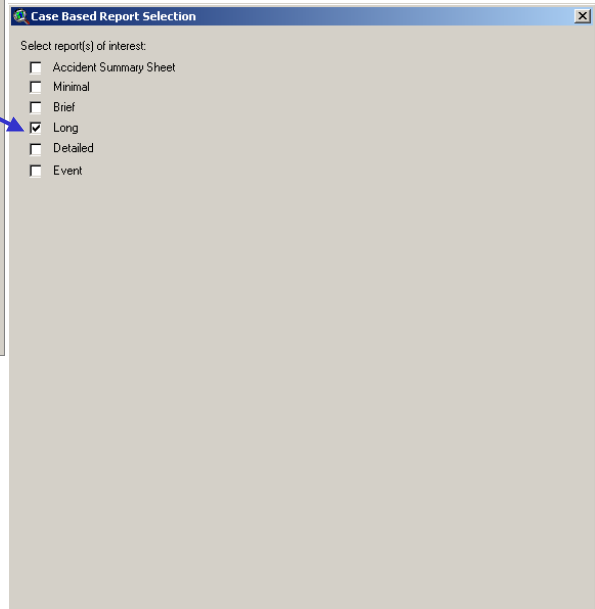
Click Next in the Answers dialog box.

SAVER Example

E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004



Case Based reports list different amounts of information and this is somewhat indicated by their names. Minimal reports list the least information and Detailed reports list the most. Brief and long list an amount of information between these two. The other reports are used for specific cases within the Iowa DOT Office of Traffic and Safety (TAS).



**Click Next in the
Answers dialog box.**

SAVER Example

E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004

Year Based Report Selection

Select report(s) of interest:

- ☐ Contributing Circumstances (Driver 1st)
- ☐ Contributing Circumstances (Driver 2nd)
- ☐ Contributing Circumstances (Environment)
- ☐ Contributing Circumstances (Roadway)
- ☐ Day of Week
- ☐ Driver Condition
- ☐ First Harmful Event
- ☐ Injured Age
- ☐ Light Conditions
- ☐ Location of First Harmful Event
- ☐ Major Cause
- ☐ Manner of Crash/Collision
- ☐ Month
- ☐ Most Harmful Event
- ☐ Non-Motorist Type
- ☐ Seating Position
- ☐ Surface Conditions
- ☐ Vehicle Configuration
- ☐ Weather Conditions

Select the
indicated
Year Based
reports.

Year Based reports summarize specific types of attributes. These types are indicated by the names. Select the indicated Year Based reports. Select whatever reports are deemed necessary for the location.

Year Based Report Selection

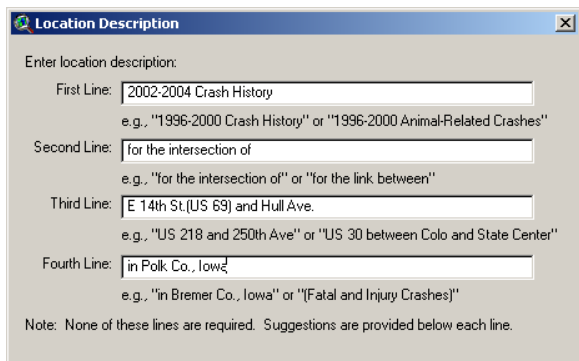
Select report(s) of interest:

- ☒ Contributing Circumstances (Driver 1st)
- ☐ Contributing Circumstances (Driver 2nd)
- ☐ Contributing Circumstances (Environment)
- ☐ Contributing Circumstances (Roadway)
- ☐ Day of Week
- ☐ Driver Condition
- ☒ First Harmful Event
- ☐ Injured Age
- ☒ Light Conditions
- ☐ Location of First Harmful Event
- ☒ Major Cause
- ☒ Manner of Crash/Collision
- ☒ Month
- ☐ Most Harmful Event
- ☐ Non-Motorist Type
- ☐ Seating Position
- ☒ Surface Conditions
- ☐ Vehicle Configuration
- ☐ Weather Conditions

**Click Next in the
Answers dialog box.**

SAVER Example

E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004



Location Description

Enter location description:

First Line: 2002-2004 Crash History
e.g., "1996-2000 Crash History" or "1996-2000 Animal-Related Crashes"

Second Line: for the intersection of
e.g., "for the intersection of" or "for the link between"

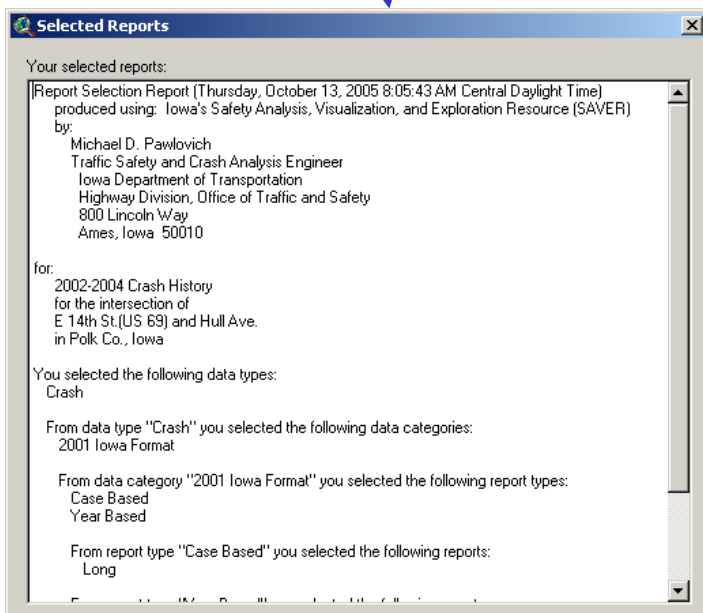
Third Line: E 14th St.(US 69) and Hull Ave.
e.g., "US 218 and 250th Ave" or "US 30 between Colo and State Center"

Fourth Line: in Polk Co., Iowa
e.g., "in Bremer Co., Iowa" or "(Fatal and Injury Crashes)"

Note: None of these lines are required. Suggestions are provided below each line.

Following selection of the reports, the **Location Description** dialog appears again. The previous description will appear if you typed one in. Change it if you want.

Click Next in the
Answers dialog box.



Selected Reports

Your selected reports:

Report Selection Report (Thursday, October 13, 2005 8:05:43 AM Central Daylight Time)
produced using: Iowa's Safety Analysis, Visualization, and Exploration Resource (SAVER)
by:
Michael D. Pawlovich
Traffic Safety and Crash Analysis Engineer
Iowa Department of Transportation
Highway Division, Office of Traffic and Safety
800 Lincoln Way
Ames, Iowa 50010

for:
2002-2004 Crash History
for the intersection of
E 14th St.(US 69) and Hull Ave.
in Polk Co., Iowa

You selected the following data types:
Crash

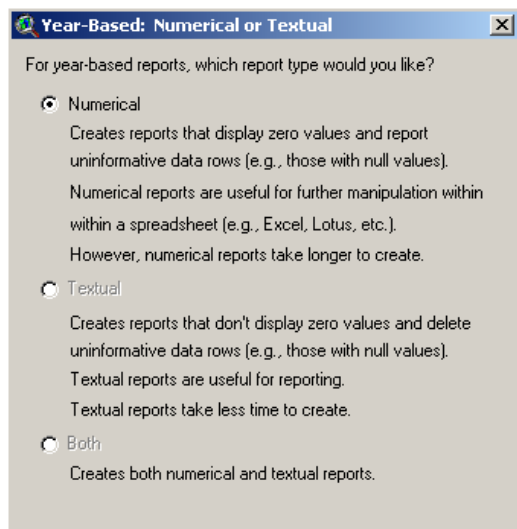
From data type "Crash" you selected the following data categories:
2001 Iowa Format

From data category "2001 Iowa Format" you selected the following report types:
Case Based
Year Based

From report type "Case Based" you selected the following reports:
Long

A report detailing your **Selected Reports** appears. You may print this, save it, or not. Review it. It should list the reports you selected.

Click Next in the
Answers dialog box.

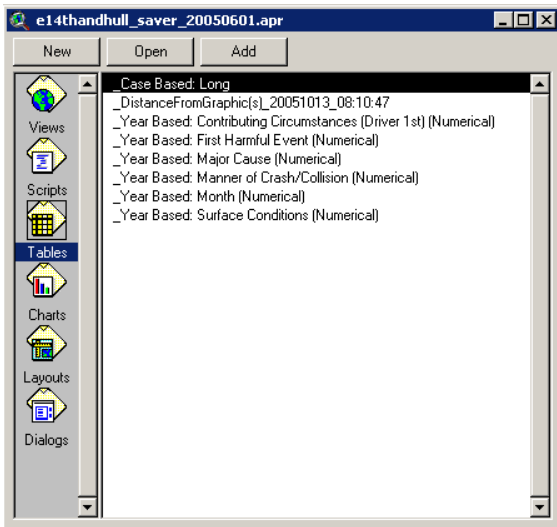


A dialog asking what type of Year Based report you wish appears. The only choice should be Numerical. If not, select Numerical.

Click Next in the Answers dialog box.

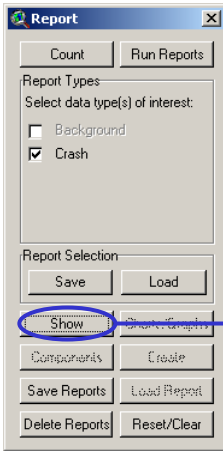
The time these reports take to be developed depends on the number of active crash themes (i.e., number of years and number of counties), number of selected crashes, and number of reports selected. This is something that individual users will have to gain experience with as the report development time also depends on computer-specific capabilities (i.e., processor speed and available memory).

Each individual report will appear in the upper left, be developed, and its window hidden finished. The reports run in the order selected. The process is finished when the last report is hidden and no new report appears. Case Based reports will fill in as development is ongoing. Year Based reports will remain blank until the final write stage. If the progress bar is moving (or flashing very rapidly, depending on the things listed above) then SAVER is still running the reports.



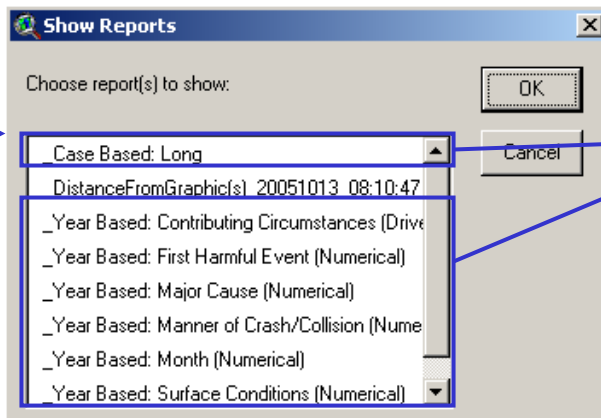
Once the selected reports have finished running, you will be returned to the Report Dialog.

The report windows will have been closed but they are still available within SAVER in two ways. The first is through the Project Window, which is shown to the left. Using the project window and highlighting the Tables icon, as shown, you can choose any of the reports individually and open them by double-clicking. This is the way to do it using ArcView's normal capabilities.



Alternatively, you can show the reports by clicking the show button on the Report Dialog. This is the way to do it using SAVER.

Click Show.



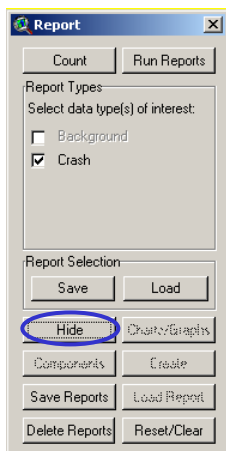
Highlight the reports of interest and click OK.

A list of the available reports (i.e., those you have created) appears. Click on and highlight those you are interested in. This selection is a toggle selection; therefore, if you select one accidentally, just click on it again and it will be unselected.

The selected reports will open. However, as all the report windows are placed in the same position and are the same size, you will see only one report. To see the others (which are underneath the top one) use your mouse to move the reports around the SAVER/ArcView area.

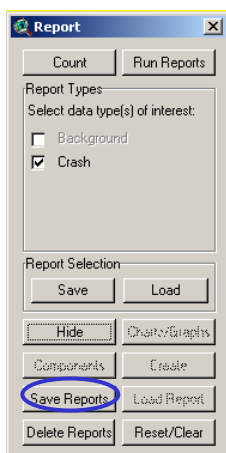
SAVER Example

E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004



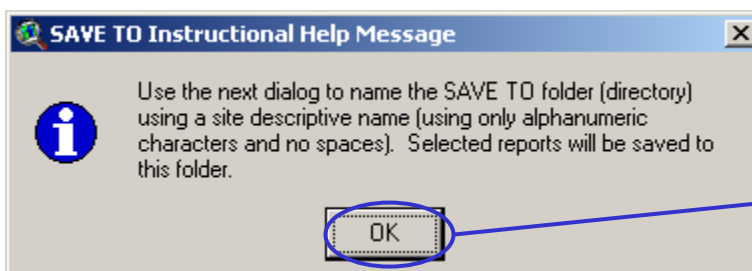
To close the report windows, you can click on the “X” in the upper right of the windows. This is the Windows or ArcView method of closing the windows.

Alternatively, you can click on the Hide button on the Report Dialog. The Hide button had previously been the Show button but when you clicked on it, it toggled to the Hide button. This brings up a Hide Reports dialog box similar to the Show Reports dialog box used to show the reports. Select the reports you wish to hide and click OK.



To save the reports for other purposes (e.g., opening them with Excel and making nicely formatted reports with lines, centering, titles, etc), click the Save Reports button on the Report Dialog. This will allow you to save each report to a user-defined directory.

A Save Reports dialog box then appears. Select the reports you would like to save in the same manner as when you wanted to show or hide the reports. When you click OK the following message is displayed.



Click OK.

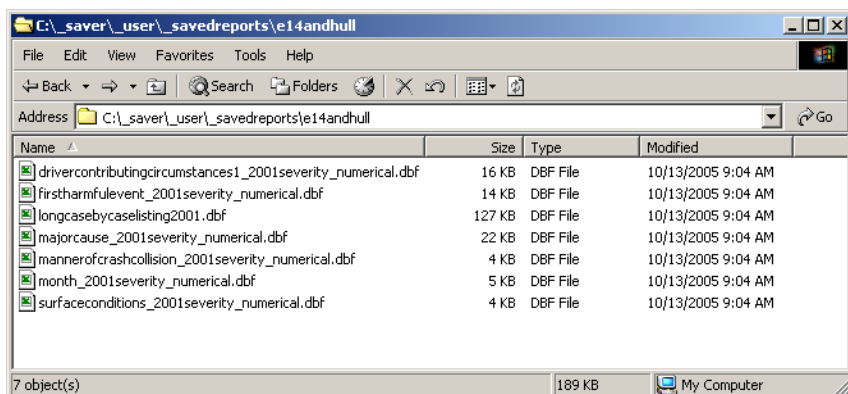
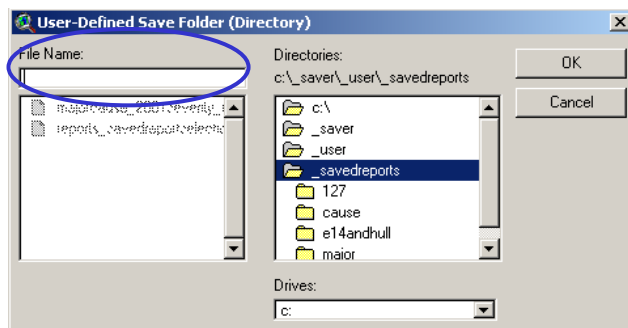
You can create a folder where you would like all of the reports to be saved and SAVER will save all of them to that folder automatically. This is slightly different from previous versions of SAVER in that you had to save each report individually.

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E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004

In the User-Defined Save Folder dialog box, type in the name of the folder you would like to create to save the reports to in the File Name field.

When you click OK you are asked if you would like to save the entirety of the reports. Unless you have selected a subset of the report and have some reason for saving only that portion, click Yes. SAVER then saves all of the reports you selected to the folder that you had it create.



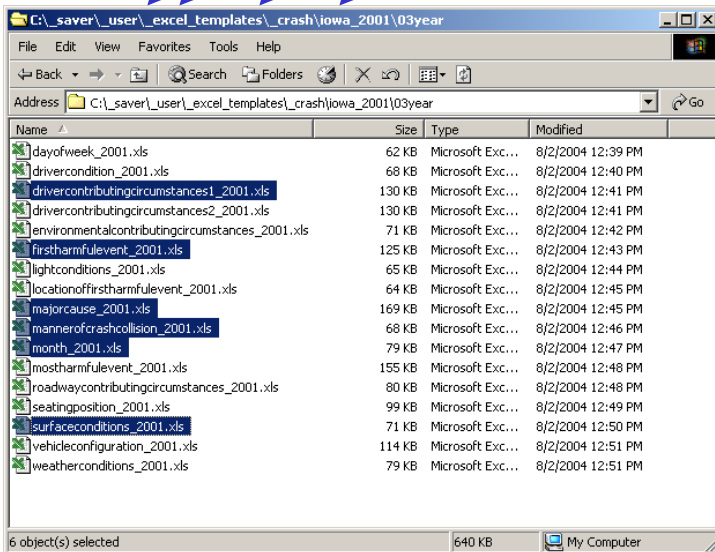
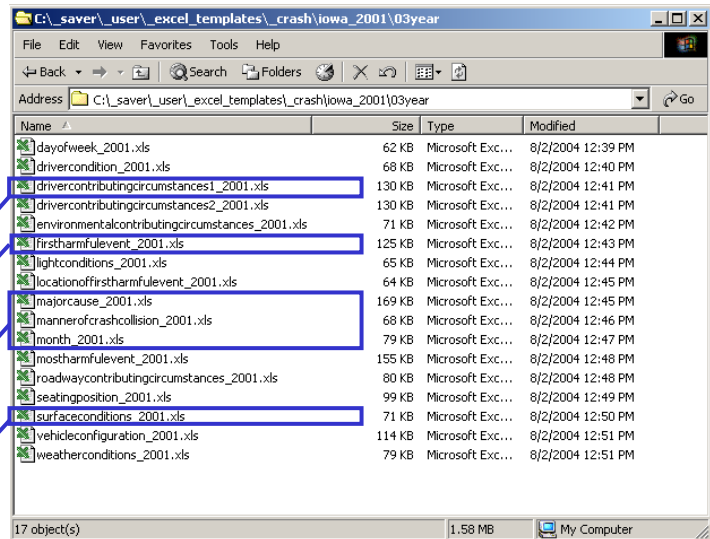
The recently saved reports appear here. Next, for the year-based reports, you can use the Excel templates that have provide standardized header and footer space, formatting, and calculations.

SAVER Example

E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004

To find the Excel templates, navigate to “C:_saver_user_excel_templates_crash\iowa_2001\”. Then find the appropriate year range, 3-year for this example.

Select the reports corresponding to the year-based reports you ran and saved.



Copy these files.
Navigate back to the folder where you saved the reports from SAVER and paste them.

SAVER Example

E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004

Open one of the SAVER output year-based reports and its appropriate Excel template. If the dBase SAVER output files aren't targeted to open within Excel, you can change this or you can open Excel first, switch to opening files of type dBASE, and then open the file.

Excel should open with both files. If this isn't the case, open the other using Excel. Choose the File menu and the Open choice.

Switch to the SAVER output file (i.e., the dBase file). Place the cursor at the C2 element or position (i.e., in the C column on the 2nd row).

After the cursor is at position C2, hold the Shift key on your keyboard then, in order, depress the End key then the Home key. This highlights the spreadsheet table from C2 to the lower right extent.

1	YEAI	CRCOMANNER	TOTAL	FATAL	MAJOR	MINOR	POSSIB	UNINJ	UNKINJ	NOTREPRD
2	2001	Non-collision	2							
3		Head-on								
4		Rear-end								
5		Angle - oncoming left turn								
6		Broadside								
7		Sideswipe - same direction								
8		Sideswipe - opposite direction								
9		Unknown								
10		Not Reported	1							1
11	2002	Non-collision	2							1
12		Head-on	1	1						
13		Rear-end								

35		Sideswipe - opposite direction								
36		Unknown	1							1
37		Not Reported								
38	2005	Non-collision	1							1
39		Head-on								
40		Rear-end								
41		Angle - oncoming left turn								
42		Broadside								
43		Sideswipe - opposite direction								

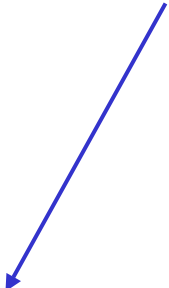
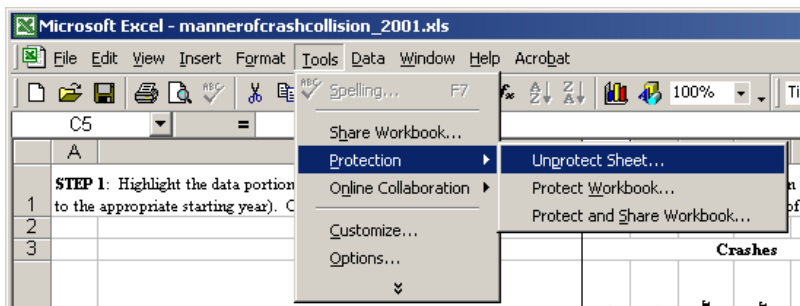
1	YEAI	CRCOMANNER	TOTAL	FATAL	MAJOR	MINOR	POSSIB	UNINJ	UNKINJ	NOTREPRD
2	2001	Non-collision	2							
3		Head-on								
4		Rear-end								
5		Angle - oncoming left turn								
6		Broadside								
7		Sideswipe - same direction								
8		Sideswipe - opposite direction								
9		Unknown								
10		Not Reported	1							1
11	2002	Non-collision	2							1
12		Head-on	1	1						
13		Rear-end								
14		Angle - oncoming left turn								
15		Broadside								
16		Sideswipe - same direction								
17		Sideswipe - opposite direction								
18		Unknown								
19		Not Reported								
20	2003	Non-collision	5							
21		Head-on								
22		Rear-end								
23		Angle - oncoming left turn								
24		Broadside								
25		Sideswipe - same direction								
26		Sideswipe - opposite direction								
27		Unknown								
28		Not Reported								
29	2004	Non-collision								
30		Head-on								
31		Rear-end								
32		Angle - oncoming left turn								
33		Broadside								
34		Sideswipe - same direction								
35		Sideswipe - opposite direction								
36		Unknown	1							1
37		Not Reported								
38	2005	Non-collision	1							1
39		Head-on								
40		Rear-end								
41		Angle - oncoming left turn								
42		Broadside								
43		Sideswipe - same direction								
44		Sideswipe - opposite direction								
45		Unknown								
46		Not Reported								
47										
48										
49										
50										
51										

Copy this.
(Ctrl+C)

SAVER Example

E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004


Switch to the Excel template. Before you can paste the data, you may have to unprotect the worksheets. To do this go to **Tools>Protection>Unprotect Sheet**. If you are prompted for a password, type in “saver” in all lower case.



STEP 1: Highlight the data portion of Manner of Crash/Collision SAVER output file, place cursor at position C5 in this table, and paste. Update first year of data (i.e., change 2001 in position A5 to the appropriate starting year). Continue to the Header/Footer worksheet by using the tab at the bottom of the Excel window.

Year	Manner of Crash/Collision	Crashes					Injuries				
		Total	Fatal	Major	Minor	Possible	Total	Fatal	Major	Minor	Possible
2001	Head-on										
	Rear-end										
	Angle - oncoming left turn										
	Broadside										
	Side-swipe - same direction										
	Side-swipe - opposite direction										
	Unknown										
	Not Reported										
2002	Head-on										
	Rear-end										
	Angle - oncoming left turn										
	Broadside										
	Side-swipe - same direction										
	Side-swipe - opposite direction										
	Unknown										
	Not Reported										
2003	Head-on										
	Rear-end										
	Angle - oncoming left turn										
	Broadside										
	Side-swipe - same direction										
	Side-swipe - opposite direction										
	Unknown										
	Not Reported										
2004	Head-on										
	Rear-end										
	Angle - oncoming left turn										
	Broadside										
	Side-swipe - same direction										
	Side-swipe - opposite direction										
	Unknown										
	Not Reported										
2005	Head-on										
	Rear-end										
	Angle - oncoming left turn										
	Broadside										
	Side-swipe - same direction										
	Side-swipe - opposite direction										
	Unknown										
	Not Reported										

Place the cursor at position C5. Paste the copied data here (Ctrl+V).



SAVER Example

E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004

Microsoft Excel - mannerofcrashcollision_2001.xls

STEP 1: Highlight the data portion of Manner of Crash/Collision SAVER output file, place mouse at position C5 in this table, and paste. Update first year of data (i.e., change 2001 in position A5 to the appropriate starting year). Continue to the HeaderFooter worksheet by using the tab at the bottom of the Excel window.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
		Total	Fatal	Major	Minor	Possible	PDO	Fatal	Major	Minor	Possible	Uninjured	Unknown		
4	Year														
5	2001	Non-collision													
6		Head-on													
7		Rear-end													
8		Angle - oncoming left turn													
9		Broadside													
10		Side-swipe - same direction													
11		Side-swipe - opposite direction													
12		Unknown													
13		Not Reported	1				1					1			
14	2002	Non-collision	2				2					1			
15		Head-on	1	1			3	2			1				
16		Rear-end													
17		Angle - oncoming left turn													
18		Broadside													
19		Side-swipe - same direction													
20		Side-swipe - opposite direction													
21		Unknown	2		1		1	1			1				
22		Not Reported													
23	2003	Non-collision	5		1	1	3	3			1	2	3		
24		Head-on													
25		Rear-end													
26		Angle - oncoming left turn	1		1			1			1	1			
27		Broadside													
28		Side-swipe - same direction													
29		Side-swipe - opposite direction													
30		Unknown													
31		Not Reported													
32	2004	Non-collision													
33		Head-on													
34		Rear-end													
35		Angle - oncoming left turn													
36		Broadside													
37		Side-swipe - same direction													
38		Side-swipe - opposite direction													
39		Unknown	1				1					1			
40		Not Reported													
41	2005	Non-collision	1		1		1				1				
42		Head-on													
43		Rear-end													
44		Angle - oncoming left turn													
45		Broadside													
46		Side-swipe - same direction													
47		Side-swipe - opposite direction													
48		Unknown													
49		Not Reported													
50															
51															

Ready

Now switch to the
HeaderFooter tab.

Here we can add some header and footer information
that will be useful when printing out the data.

Microsoft Excel - mannerofcrashcollision_2001.xls

STEP 2: Insert the appropriate descriptors in positions C5-C8 and E13-E15. Continue to the YearByYear and Summed worksheets by using the tabs at the bottom of the Excel window. The YearByYear and Summed worksheets are for review and printing. Most often, the Summed worksheet will be printed because a summary of the data across all data years is desired, not a year by year breakdown.

Header ²		
1 st Line:	2001-2005 Crash History	Data coverage date range.
2 nd Line:	for the <site type> of	Type of feature.
3 rd Line:	<site literal description>	Literary description of feature.
4 th Line:	in <jurisdiction name>, Iowa	Jurisdiction of Feature.
Footer ²		
1 st Line:	Developed by:	Iowa Department of Transportation
2 nd Line:		Highway Division, Engineering Bureau, Office of Traffic and Safety
3 rd Line:		March 2, 2004
4 th Line:	using:	Iowa's Safety Analysis, Visualization, and Exploration Resource (SAVER)
		Company/Business/Jurisdiction
		Office/Location/Focus Area
		Date of Report

1st These lines will appear at the top of the finished worksheets.

2nd These lines will appear at the bottom of the finished worksheets.

Alternate Header (for copying and pasting header information from another source):

1st Line:

2nd Line:

3rd Line:

4th Line:

Alternate Footer (for copying and pasting footer information from another source):

1st Line:

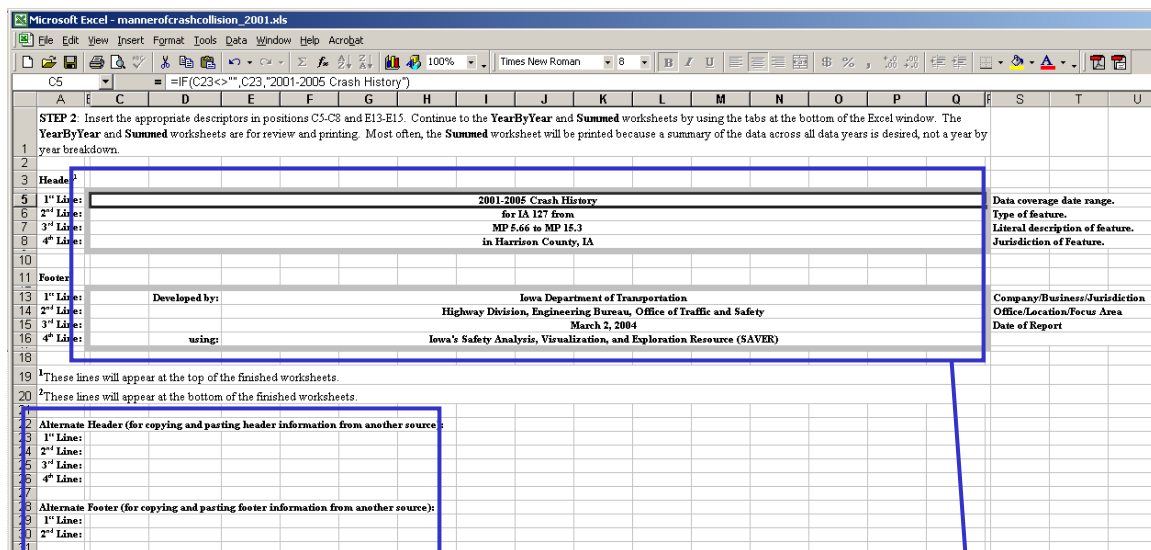
2nd Line:

Next page...

SAVER Example

E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004

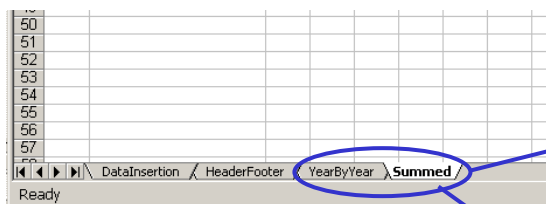
Information can be added in two locations.



Information can be pasted in here if copied from another source such as SAVER.

You can type information directly in here. This is usually the same information that was entered when doing the Feature Count Report in SAVER.

The description you type will automatically appear on the summary sheet.



Nothing needs to be done in the YearByYear tab. This could be printed as it appears if you wanted to see a Year by Year summary of the crashes.

Microsoft Excel - mannerofcrashcollision_2001.xls

File Edit View Insert Format Tools Data Window Help Acrobat

A8 2001 thru 2005

2001-2005 Crash History

for IA 127 from

MP 5.66 to MP 15.3

in Harrison County, IA

Year Range	Manner of Crash/Collision	Crashes						Injuries					
		Total	Fatal	Major	Minor	Possible	Unknown	Total	Fatal	Major	Minor	Possible	Unknown
2001 thru 2005	Intersection - increasing left turn	1	1	2	1	7	4	3	2	2	1	4	
	Intersection - same direction	1		1		1	1		1			1	
	Intersection - opposite direction	3		1		2	1		1			1	
	Unknown	1				1						1	
	Not Reported												
	Totals	16	1	4	1	10	9	2	4	3		7	

Developed by: Iowa Department of Transportation

Highway Division, Engineering Bureau, Office of Traffic and Safety

March 2, 2004

using: Iowa's Safety Analysis, Visualization, and Exploration Resource (SAVER)

The values in this table represent crashes and injuries that involved one of these manners of crashes/collisions. Unless a data error exists, the totals represented here will most likely sum to the total frequency of crashes.

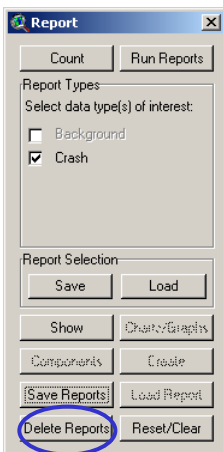
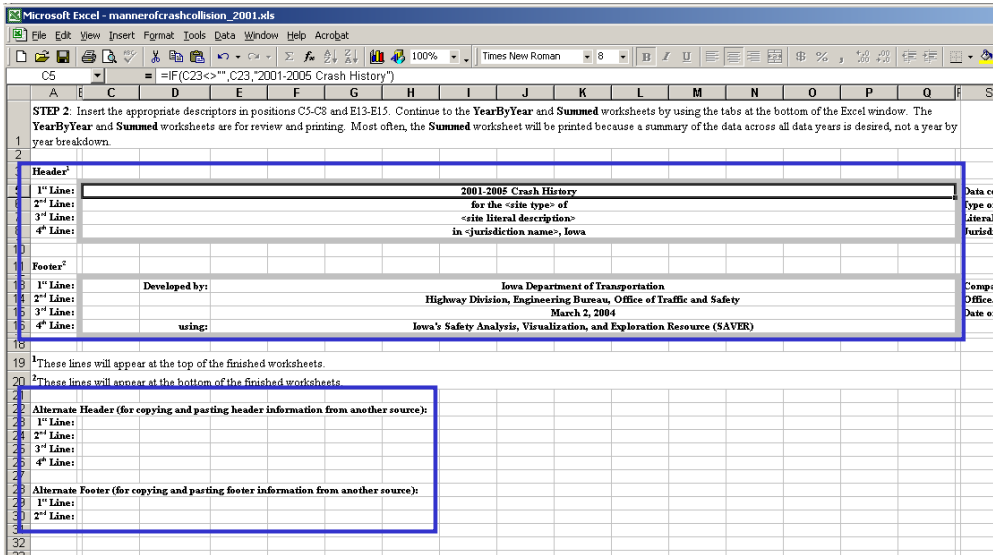
The Summed tab contains a summary of the data. The only thing that might have to be done here is changing the years in cell A8. This could also then be printed.

SAVER Example

E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004

Do the same for the other output year-based reports.

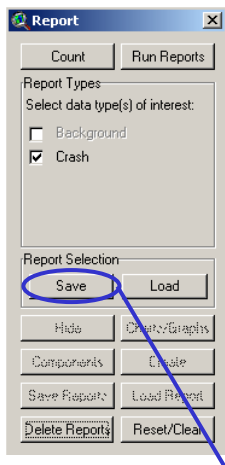
If you do all but the header/footer information, then open all the Excel templates simultaneously, you can copy and paste the description and footer between all the Excel templates.



When done or before running further reports, delete the previously created reports. Begin by going back to ArcView SAVER and returning to the Report dialog.

Click the Delete Reports button.

A dialog showing the reports open. Select the reports to delete. Normally, all reports could be selected. Select the reports to delete and click OK. Looking at the Project Window again, all of the reports should be gone.



Next, you can save the selection of reports you had created. That is, you can save the fact that you had chosen to run a case-based report and 6 year-based reports. Then, when you do another request, you can run these same reports by loading the report selection file and running reports. You might do this if you knew you'd always run the same reports for every data request you do. Using the saved report selection, you wouldn't have to progress through all the check boxes that you used to select the 7 reports you ran previously.

Click Save within the Report Selection control panel.

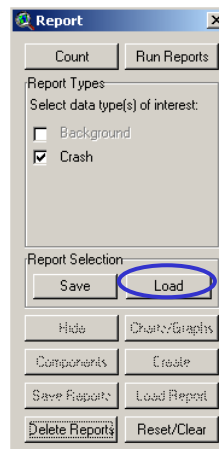


In the Save Report Selection dialog box that comes up, type in a descriptive term for your saved report selection and click OK. You can only replace the portion of the suggested filename prior to the underbar (“_”).

To load the saved report selection, click Load on the Report dialog.

Select the report selection to load in the Load Report Selection dialog box that comes up and click OK.

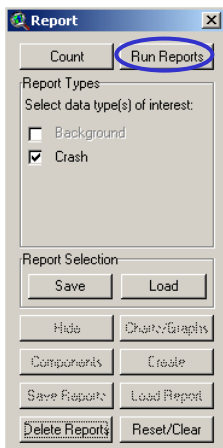
The report selection is loaded and available for running.



To run the selected reports, click the Run Reports button on the Reports dialog.

This button will run either loaded report selections or previously selections made during the same SAVER session.

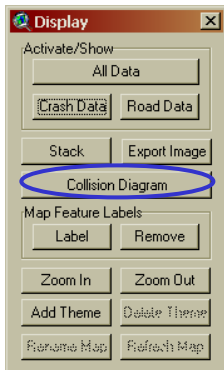
Make sure the Numerical radio button is selected and click Next in the Answers dialog box. Progress as before (see page 21).



Create Collision Diagram

SAVER Example

E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004

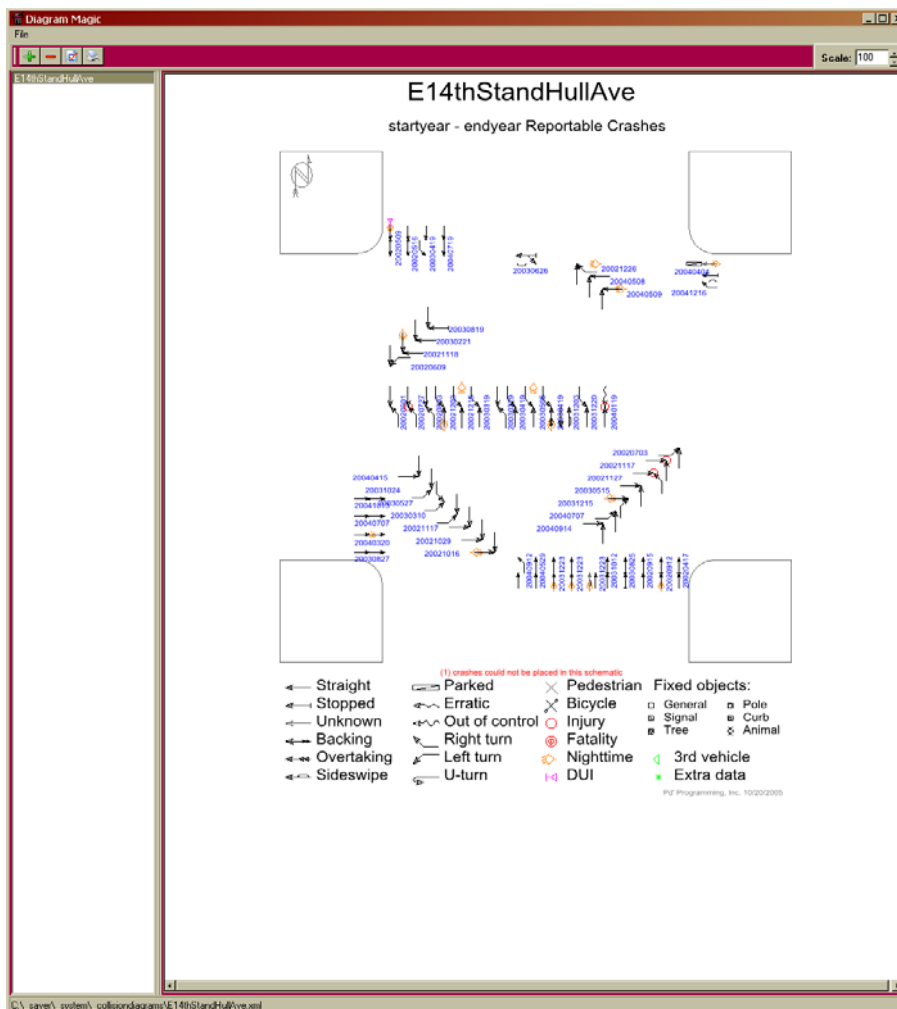


From the Main dialog box, select Display.
Then click Collision Diagram.

A dialog box comes up where you can give the Collision Diagram that you are about to create a name. **IMPORTANT-DO NOT USE SPACES IN THE NAME!**

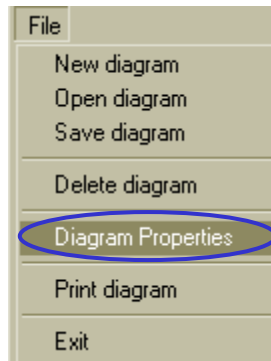
ArcView SAVER will then run for a little while as it creates the Collision Diagram.

When the Collision Diagram is created, it should appear in a new window and look something like the following.

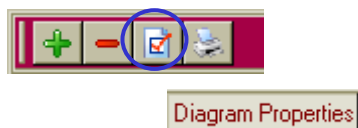


**There are several options that can be changed with the map.
To change the properties of the map, go to the Diagram
Settings dialog box. There are two ways to accomplish this.**

**The first way is to select the File pull-down menu and then
select Diagram Properties.**

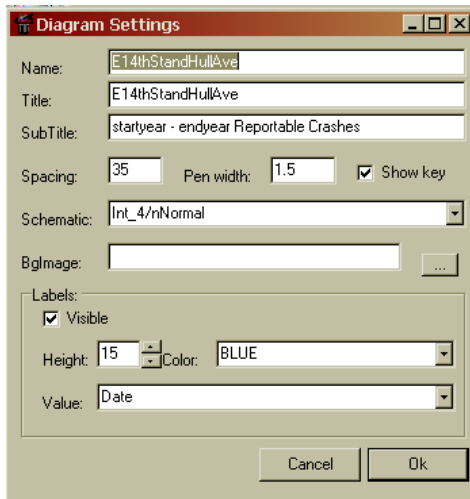


**The second way is to click on the Diagram
Properties tool button on the toolbar.**



SAVER Example

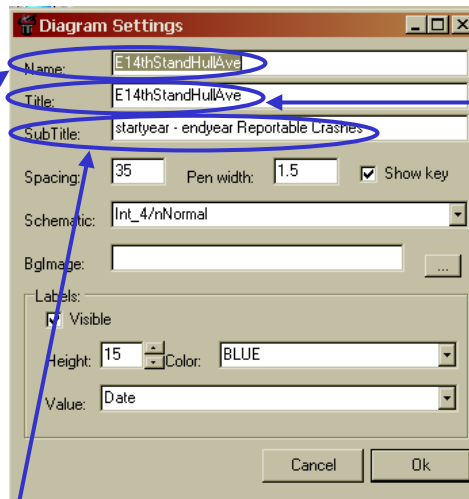
E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004



The Diagram Settings dialog box should now be open.

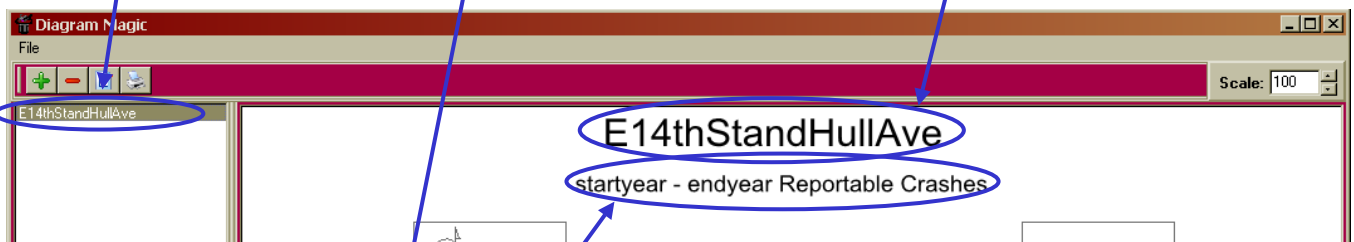
As many or as few of these options can be changed as deemed necessary by the user.

The different options will be described here. Most of them are pretty self explanatory



In the Name field you can give the diagram a different name if you wish. This is the name you gave the diagram before it was created.

In the Title field you can give a different title to the diagram. This is what appears at the top of the diagram.



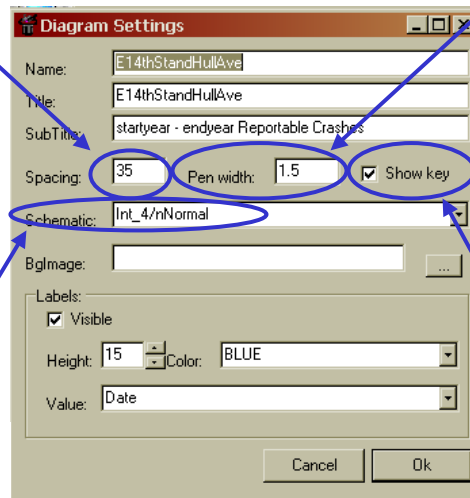
As the Subtitle field indicates, this changes the subtitle below the Title. This is usually the year of crash data.

SAVER Example

E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004

The Spacing is the spacing between the crashes in the diagram.

The Pen width is the width of the lines that the crashes are drawn width.



The image shows a 'Diagram Settings' dialog box with the following fields and controls:

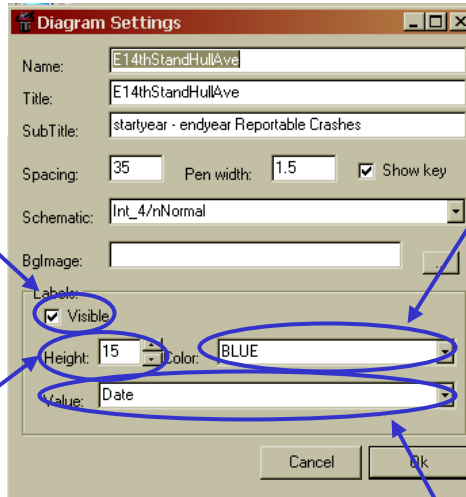
- Name: E14thStandHullAve
- Title: E14thStandHullAve
- SubTitle: startyear - endyear Reportable Crashes
- Spacing: 35 (circled in blue)
- Pen width: 1.5 (circled in blue)
- Show key: ☒ (circled in blue)
- Schematic: Int_4/nNormal (circled in blue)
- BglImage: (empty field with a browse button)
- Labels: ☒ Visible
- Height: 15
- Color: BLUE
- Value: Date
- Buttons: Cancel, Ok

The Schematic field dictates the layout of the basic intersection of the diagram. There are many options here to chose depending on the geometry of your intersection.

If you would like the key shown at the bottom of the diagram, make sure the Show key check box has a check in it. It is recommended to have this option checked.

Label Options

If you would like the crashes labeled, make sure the Visible check box has a check in it. It is recommended to have this option checked.



The image shows a 'Diagram Settings' dialog box with various fields and controls. Blue arrows and ovals highlight specific settings: the 'Visible' checkbox, the 'Height' pull-down menu (set to 15), the 'Color' pull-down menu (set to BLUE), and the 'Value' pull-down menu (set to Date). The dialog also includes fields for Name, Title, SubTitle, Spacing, Pen width, Schematic, BglImage, and buttons for Cancel and Ok.

The Color pull-down menu adjust the color of the labels.

The Height pull-down menu adjust the height of the labels.

The Value pull-down menu adjust what is displayed in the label.

When you have adjusted the settings how you would like them, click OK. The diagram will take a moment to render and redraw itself with the settings you selected.

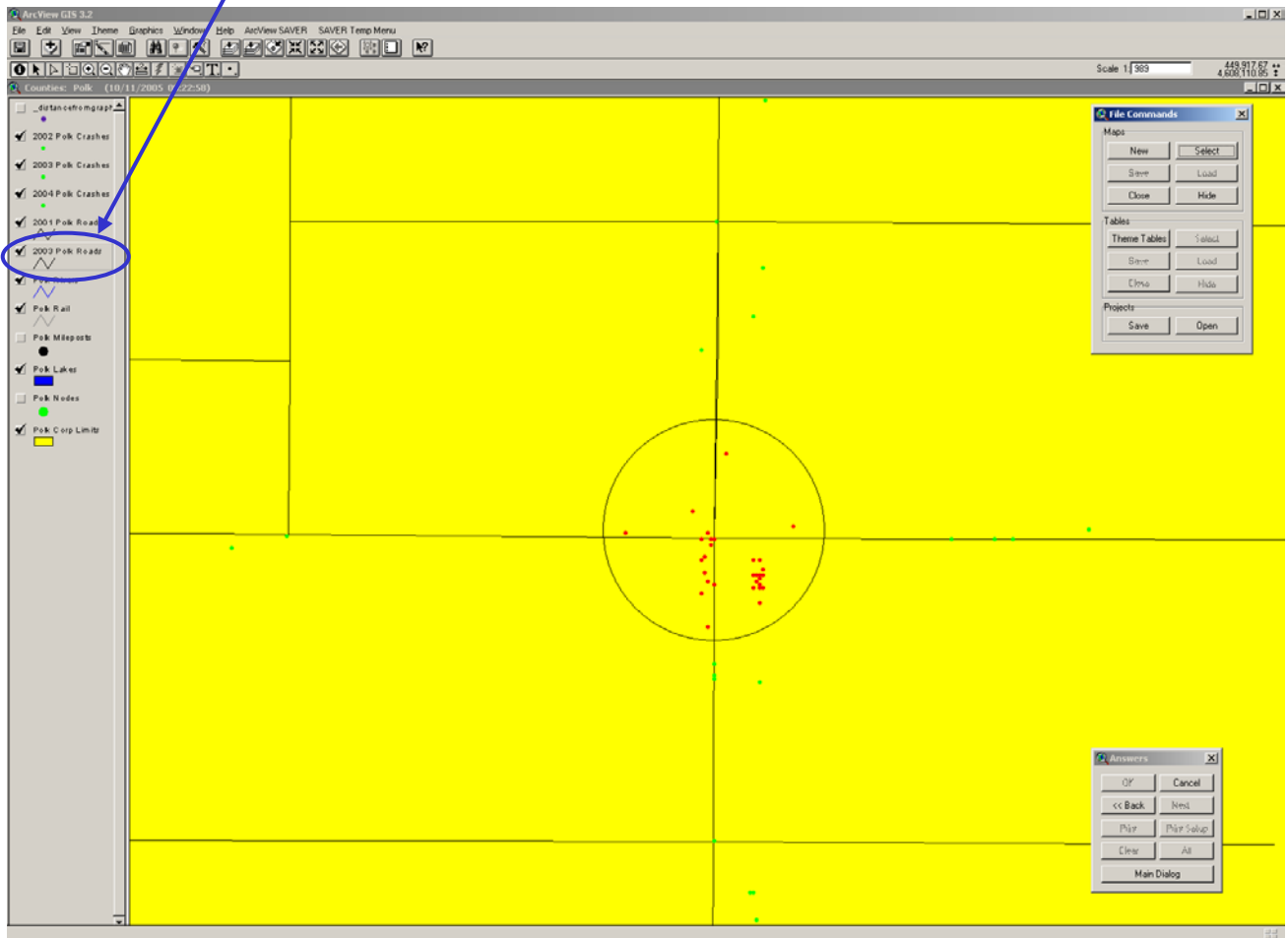
The Collision Diagram can then be printed. There are also two ways to print the diagram. You can select Print diagram from the File pull-down menu or click the Print Diagram button on the toolbar.

Calculate Crash Rate

SAVER Example

E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004

Now a crash rate for the intersection will be calculated.
In the map window, make the road theme active.



Identify

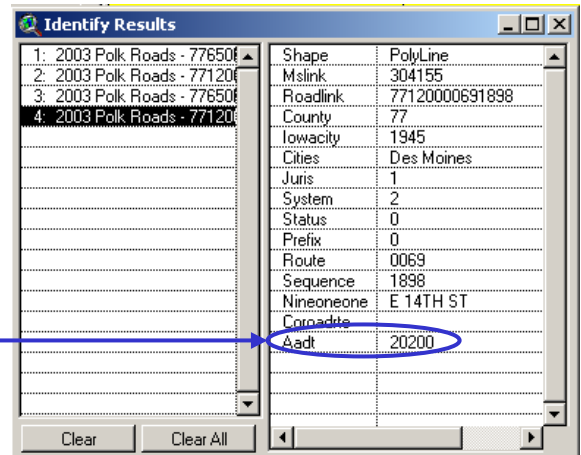
Next, click on the Identify tool.

SAVER Example

E 14th St. (US 69) and Hull Ave.,
Polk County, 2002-2004

Then click on each leg of the intersection. That link of the roadway should flash briefly so that you know which one it is you clicked. Try to notice if the link ends at the intersection or continues through it. Most of the time it will end at the intersection, but this is not always the case.

A Identify Results dialog box appears. This contains information about that link of roadway. The information that we are looking for is the AADT. You may have to make the box larger or scroll down to see this information.



Note: Some of the links of roadways may pass through the intersection. If this is the case, you may only see three entries even though it is a 4-legged intersection.

Once you have the AADT for each leg of the intersection, you will need to calculate the Daily Entering Vehicles (DEV) for the intersection. This is done by taking the AADT of each leg and dividing that value by two and then adding these up.